

SEQUENCE LISTING

<110> Wicher, Kryzysztof B.
 Holst, Olof Peder
 Hachem, Maher Youssef Abou
 Karlsson, Eva Margareta Nordberg
 Hreggvidsson, Guðmundur O.

<120> Thermostable Cellulase

<130> P5099PC00

<150> PCT/IS01/00012
 <151> 2001-06-15

<150> 09/594,884
 <151> 2000-06-15

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<170> FastSEQ for Windows Version 4.0

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tacgactacg ggccgaacgc ccgcacgcag cgtgtccggg aagcgcagtt gcgcaccatg	180	
tgcgcgtgcc tcatacgggt atggtcgtga ccaccatgt gggcgacgac cacaacacta	240	
cctccggcgc gacaacgtga agtggcgagc gcctggcctc tggcgctgg ccaacgacta	300	
cggcttccgg gatgtggtct actccggtcc catctacgaa cgcacggaa acgtggcgatgg	360	
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		Met Asn Val
		1

atg cgt gcg gta ctg gtc ctg agc ctg tta ttg ctg ttt gga tgc gac Met Arg Ala Val Leu Val Leu Ser Leu Leu Leu Phe Gly Cys Asp 5 10 15	766
tgg ctc ttt ccc gat ggc gac aac gga aag gaa ccg gag cct gag ccc Trp Leu Phe Pro Asp Gly Asp Asn Gly Lys Glu Pro Glu Pro Glu Pro 20 25 30 35	814
gag ccg acc gtc gag ctg tgc gga cgc tgg gac gcg cgc gat gtg gcc Glu Pro Thr Val Glu Leu Cys Gly Arg Trp Asp Ala Arg Asp Val Ala 40 45 50	862
ggg ggg cgc tac cgg gtg atc aac aac gta tgg ggc gcg gag acc gcc Gly Gly Arg Tyr Arg Val Ile Asn Asn Val Trp Gly Ala Glu Thr Ala 55 60 65	910
cag tgc att gag gtc gga ctg gaa acg ggc aac ttc acg atc aca cgg Gln Cys Ile Glu Val Gly Leu Glu Thr Gly Asn Phe Thr Ile Thr Arg 70 75 80	958
gcc gat cac gac aac ggc aac aac gtg gcc gcc tat ccg gcc atc tac Ala Asp His Asp Asn Gly Asn Asn Val Ala Ala Tyr Pro Ala Ile Tyr 85 90 95	1006
ttc ggg tgc cac tgg ggc gcc tgc acg agc aat tcg gga ttg ccg cgg Phe Gly Cys His Trp Gly Ala Cys Thr Ser Asn Ser Gly Leu Pro Arg 100 105 110 115	1054
cgc gtg cag gag ctg tcc gac gtg cgc acg agc tgg acg ctc acg ccg Arg Val Gln Glu Leu Ser Asp Val Arg Thr Ser Trp Thr Leu Thr Pro 120 125 130	1102
atc acg acg ggc cgc tgg aat gcc gcc tac gac atc tgg ttc agt ccc Ile Thr Thr Gly Arg Trp Asn Ala Ala Tyr Asp Ile Trp Phe Ser Pro 135 140 145	1150
gtc acg aat tcc ggc aac ggc tac agc ggc ggc gcc gag ctg atg atc Val Thr Asn Ser Gly Asn Gly Tyr Ser Gly Gly Ala Glu Leu Met Ile 150 155 160	1198
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gac tgg aat tac atc gcc tac cgg cgc acg acg ccc acc acg tcg gtg Asp Trp Asn Tyr Ile Ala Tyr Arg Arg Thr Thr Pro Thr Thr Ser Val 200 205 210	1342
agc gag ctg gac ctg aag gcc ttc atc gac gac gcg gtc gcc cgc ggc Ser Glu Leu Asp Leu Lys Ala Phe Ile Asp Asp Ala Val Ala Arg Gly 215 220 225	1390
tac atc cgg ccg gag tgg tat ctg cat gcg gtg gag acg ggc ttc gaa Tyr Ile Arg Pro Glu Trp Tyr Leu His Ala Val Glu Thr Gly Phe Glu 230 235 240	1438

ctc tgg gag ggc ggg gcc ggt ctg cga agc gcc gat ttt tcc gta acg	1486
Leu Trp Glu Gly Gly Ala Gly Leu Arg Ser Ala Asp Phe Ser Val Thr	
245 250 255	
gtg cag tag cctgtcacac gggcaccagc gtaggccaga gaagcacccg	1535
Val Gln	
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 <213> Rhodothermus marinus

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Pro Glu Pro Glu Pro Thr Val Glu Leu Cys Gly Arg Trp Asp Ala Arg	
35 40 45	

Asp Val Ala Gly Gly Arg Tyr Arg Val Ile Asn Asn Val Trp Gly Ala	
50 55 60	

Glu Thr Ala Gln Cys Ile Glu Val Gly Leu Glu Thr Gly Asn Phe Thr	
65 70 75 80	

Ile Thr Arg Ala Asp His Asp Asn Gly Asn Asn Val Ala Ala Tyr Pro	
85 90 95	

Ala Ile Tyr Phe Gly Cys His Trp Gly Ala Cys Thr Ser Asn Ser Gly	
100 105 110	

Leu Pro Arg Arg Val Gln Glu Leu Ser Asp Val Arg Thr Ser Trp Thr	
115 120 125	

Leu Thr Pro Ile Thr Thr Gly Arg Trp Asn Ala Ala Tyr Asp Ile Trp
 130 135 140

Phe Ser Pro Val Thr Asn Ser Gly Asn Gly Tyr Ser Gly Gly Ala Glu
 145 150 155 160

Leu Met Ile Trp Leu Asn Trp Asn Gly Gly Val Met Pro Gly Gly Ser
 165 170 175

Arg Val Ala Thr Val Glu Leu Ala Gly Ala Thr Trp Glu Val Trp Tyr
 180 185 190

Ala Asp Trp Asp Trp Asn Tyr Ile Ala Tyr Arg Arg Thr Thr Pro Thr
 195 200 205

Thr Ser Val Ser Glu Leu Asp Leu Lys Ala Phe Ile Asp Asp Ala Val
 210 215 220

Ala Arg Gly Tyr Ile Arg Pro Glu Trp Tyr Leu His Ala Val Glu Thr
 225 230 235 240

Gly Phe Glu Leu Trp Glu Gly Gly Ala Gly Leu Arg Ser Ala Asp Phe
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Ser Val Thr Val Gln
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 <213> Rhodothermus marinus

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 ctgtgcggac gctgggacgc gcgcgatgtg gccggggggc gctaccgggt gatcaacaac 180
 gtagggggcg cggagaccgc ccagtgcatt gaggtcggac tggaaacggg caacttcacg 240
 atcacacggg ccgatcacga caacggcaac aacgtggccg cctatccggc catctactc 300
 gggtgccact gggcgccctg cacgagcaat tcgggattgc cgcggcgctg gcaggagctg 360
 tccgacgtgc gcacgagctg gacgctcacg ccgatcacga cggccgcgt gaatgccgc 420
 tacgacatct gttcagtc cgtcacgaat tccggcaacg gctacagcgg cggccgcgag 480
 ctgatgatct ggctgaactg gaacggcggc gtgatgccgg gcggcagccg cgtggccacc 540

gtggaaactgg ccggggccac ctggaaagtc tggatgccg actggactg gaattacatc 600
 gcctaccggc gcacgacgcc caccacgtcg gtgagcgagc tggacctgaa ggccttcatc 660
 gacgacgccc tcgccccggc ctacatccgg ccggagtggt atctgcatgc ggtggagacg 720
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 cagtag 786

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 Met Ser Lys Lys Phe Val Ile Val Ser
 1 5 10
 atc tta aca atc ctt tta gta cag gca ata tat ttt gta gaa aag tat 159
 Ile Leu Thr Ile Leu Leu Val Gln Ala Ile Tyr Phe Val Glu Lys Tyr
 15 20 25
 cat acc tct gag gac aag tca act tca aat acc tca tct aca cca ccc 207
 His Thr Ser Glu Asp Lys Ser Thr Ser Asn Thr Ser Ser Thr Pro Pro
 30 35 40
 caa aca aca ctt tcc act acc aag gtt ctc aag att aga tac cct gat 255
 Gln Thr Thr Leu Ser Thr Lys Val Leu Lys Ile Arg Tyr Pro Asp
 45 50 55
 gac ggt gag tgg cca gga gct cct att gat aag gat ggt gat ggg aac 303
 Asp Gly Glu Trp Pro Gly Ala Pro Ile Asp Lys Asp Gly Asp Gly Asn
 60 65 70
 cca gaa ttc tac att gaa ata aac cta tgg aac att ctt aat gct act 351
 Pro Glu Phe Tyr Ile Glu Ile Asn Leu Trp Asn Ile Leu Asn Ala Thr
 75 80 85 90
 gga ttt gct gag atg acg tac aat tta acc agc ggc gtc ctt cac tac 399
 Gly Phe Ala Glu Met Thr Tyr Asn Leu Thr Ser Gly Val Leu His Tyr
 95 100 105
 gtc caa caa ctt gac aac att gtc ttg agg gat aga agt aat tgg gtg 447
 Val Gln Gln Leu Asp Asn Ile Val Leu Arg Asp Arg Ser Asn Trp Val
 110 115 120
 cat gga tac ccc gaa ata ttc tat gga aac aag cca tgg aat gca aac 495
 His Gly Tyr Pro Glu Ile Phe Tyr Gly Asn Lys Pro Trp Asn Ala Asn
 125 130 135

tac gca act gat ggc cca ata cca tta ccc agt aaa gtt tca aac cta	543
Tyr Ala Thr Asp Gly Pro Ile Pro Leu Pro Ser Lys Val Ser Asn Leu	
140 145 150	
aca gac ttc tat cta aca atc tcc tat aaa ctt gag ccc aag aac gga	591
Thr Asp Phe Tyr Leu Thr Ile Ser Tyr Lys Leu Glu Pro Lys Asn Gly	
155 160 165 170	
ctg cca att aac ttc gca ata gaa tcc tgg tta acg aga gaa gct tgg	639
Leu Pro Ile Asn Phe Ala Ile Glu Ser Trp Leu Thr Arg Glu Ala Trp	
175 180 185	
aga aca aca gga att aac agc gat gag caa gaa gta atg ata tgg att	687
Arg Thr Thr Gly Ile Asn Ser Asp Glu Gln Glu Val Met Ile Trp Ile	
190 195 200	
tac tat gac gga tta caa ccg gct ggc tcc aaa gtt aag gag att gta	735
Tyr Tyr Asp Gly Leu Gln Pro Ala Gly Ser Lys Val Lys Glu Ile Val	
205 210 215	
gtc cca ata ata gtt aac gga aca cca gta aat gct aca ttt gaa gta	783
Val Pro Ile Ile Val Asn Gly Thr Pro Val Asn Ala Thr Phe Glu Val	
220 225 230	
tgg aag gca aac att ggt tgg gag tat gtt gca ttt aga ata aag acc	831
Trp Lys Ala Asn Ile Gly Trp Glu Tyr Val Ala Phe Arg Ile Lys Thr	
235 240 245 250	
cca atc aaa gag gga aca gtg aca att cca tac gga gca ttt ata agt	879
Pro Ile Lys Glu Gly Thr Val Thr Ile Pro Tyr Gly Ala Phe Ile Ser	
255 260 265	
gtt gca gcc aac att tca agc tta cca aat tac aca gaa ctt tac tta	927
Val Ala Ala Asn Ile Ser Ser Leu Pro Asn Tyr Thr Glu Leu Tyr Leu	
270 275 280	
gag gac gtg gag att gga act gag ttt gga acg cca agc act acc tcc	975
Glu Asp Val Glu Ile Gly Thr Glu Phe Gly Thr Pro Ser Thr Thr Ser	
285 290 295	
gcc cac cta gag tgg tgg atc aca aac ata aca cta act cct cta gat	1023
Ala His Leu Glu Trp Trp Ile Thr Asn Ile Thr Leu Thr Pro Leu Asp	
300 305 310	
aga cct ctt att tcc taa atttcgcaaa cctggaaatt atcaagttta	1071
Arg Pro Leu Ile Ser	
315	
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ctc	1134

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 <213> Pyrococcus furiosus

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Val Gln Ala Ile Tyr Phe Val Glu Lys Tyr His Thr Ser Glu Asp Lys
 20 25 30

Ser Thr Ser Asn Thr Ser Ser Thr Pro Pro Gln Thr Thr Leu Ser Thr
 35 40 45

Thr Lys Val Leu Lys Ile Arg Tyr Pro Asp Asp Gly Glu Trp Pro Gly
 50 55 60

Ala Pro Ile Asp Lys Asp Gly Asp Gly Asn Pro Glu Phe Tyr Ile Glu
 65 70 75 80

Ile Asn Leu Trp Asn Ile Leu Asn Ala Thr Gly Phe Ala Glu Met Thr
 85 90 95

Tyr Asn Leu Thr Ser Gly Val Leu His Tyr Val Gln Gln Leu Asp Asn
 100 105 110

Ile Val Leu Arg Asp Arg Ser Asn Trp Val His Gly Tyr Pro Glu Ile
 115 120 125

Phe Tyr Gly Asn Lys Pro Trp Asn Ala Asn Tyr Ala Thr Asp Gly Pro
 130 135 140

Ile Pro Leu Pro Ser Lys Val Ser Asn Leu Thr Asp Phe Tyr Leu Thr
 145 150 155 160

Ile Ser Tyr Lys Leu Glu Pro Lys Asn Gly Leu Pro Ile Asn Phe Ala
 165 170 175

Ile Glu Ser Trp Leu Thr Arg Glu Ala Trp Arg Thr Thr Gly Ile Asn
 180 185 190

Ser Asp Glu Gln Glu Val Met Ile Trp Ile Tyr Tyr Asp Gly Leu Gln
 195 200 205

Pro Ala Gly Ser Lys Val Lys Glu Ile Val Val Pro Ile Ile Val Asn
 210 215 220

Gly Thr Pro Val Asn Ala Thr Phe Glu Val Trp Lys Ala Asn Ile Gly
 225 230 235 240

Trp Glu Tyr Val Ala Phe Arg Ile Lys Thr Pro Ile Lys Glu Gly Thr
 245 250 255

Val Thr Ile Pro Tyr Gly Ala Phe Ile Ser Val Ala Ala Asn Ile Ser
 260 265 270

Ser Leu Pro Asn Tyr Thr Glu Leu Tyr Leu Glu Asp Val Glu Ile Gly
 275 280 285

Thr Glu Phe Gly Thr Pro Ser Thr Thr Ser Ala His Leu Glu Trp Trp
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Ile Thr Asn Ile Thr Leu Thr Pro Leu Asp Arg Pro Leu Ile Ser
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<223> Synthetic Oligonucleotide	
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agctccatat gtgcgactgg ctctttcc	28
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